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individual reform. The abrogation of luxury would confer two most essential benefits, the promotion of domestic happiness and the increase of public and private virtue. It would be well to resist the sway of fashion, and submit only to the rule of reason not to live as others live, but according to a well digested plan suited to our particular circumstances, to enjoy as many of the comforts, and as few of the inconveniences of life, as may be consistent with our lot—at least let us not multiply evils by an unwise choice, and a foolish imitation of fashionable life, but wisely prefer reality to thine and comfort to show.

K.

For the Belfast Monthly Magazine.

DESCRIPTION OF THE SHIP ECONOMY,
200 TONS MEASUREMENT, BUILT AC-
CORDING TO J. W. BOSWELL'S PA-
TENT.

THE plan adopted in the formation of this ship is that designed for large ships of 500 tons and upwards, and the third mentioned in the specification.*

Its external appearance is not different from that of another vessel of the size, and the outward planking is done in the usual manner. It is the internal construction alone to which the patent relates, and that is as follows:

The best general idea of it will be obtained by conceiving a vessel built with timbers, or ribs, much smaller than usual, with an internal framing, so contrived as to give every requisite support and strength both to them and the entire vessel, with the least timber and of the cheapest form, and without any knee timber.

The floor-timbers are molded seven inches, and sided six: these, with four futtocks and two top timbers at each side, form what is called a frame of timbers. Those small timbers are laid down so that their terminations all fall out in fair lines, which (below the wales) are nearly the same as the ribband lines. Along those lines inside are laid fore and aft ribs,

from stem to stern post, so as to support the extremity of every one of the small ribs in the ship. The fore and aft ribs are six in number at each side; one directly under the water ways, another at the level of the lower beams, and the other four are placed nearly at equal distances between these last and the keelson;—each pair uniting in a breast-hook at the stem.

The pieces of timber which form these fore and aft ribs are scarfed at their extremities with hook scarfs, and so placed that the scarfs fall out in fair vertical sections of the ship, where they are supported, and firmly bolted to transverse framings, contrived so as to unite the greatest strength with the least obstruction, and which are five in number in the whole ship.

Those transverse framings are each formed by one upper and one lower beam, two pair of futtocks, a floor timber, two pair of top timbers and four bracing pieces; the whole connected into one firm framing, self-supported, independent of any other part.

The four bracing pieces form each framing into a set of triangular compartments: which triangular framing gives the greatest stability possible, as a triangular frame cannot be made to give in, or alter its figure, by any force which is not sufficient to tear its connecting parts through the timber of which it is composed; a property which no other figure possesses.

These transverse framings (besides supporting the fore and aft ribs, and by them the small vertical timbers) tie and unite the vessel together across ship, so as to give much greater strength than hanging knees, whose place they supply, at a much cheaper rate.

The framing of the deck is also divided into triangular compartments, so as to preclude the use of lodging knees entirely; which compartments are formed by six pieces of timber, which proceed obliquely at each side, from the top of each beam to the fore and aft rib next adjoining, into which they are dove-tailed and bolted; long carlings from beam to beam, at each side of the hatchways, with

* See vol. II. Second Series, p. 81 of Repository of Arts.

these pieces, support small ledges, on which the deck is laid in the usual manner.

Advantages of this method of framing Ships.

1. Timber of less than one fourth of the usual girth can be used, in this method, in constructing large vessels, for nearly four-fifths of their frames.

This will be a direct saving in the difference of price of small timber and large for the quantity used; for large vessels this will be considerable, and according to the present contract prizes for naval timber, not less than from two to four pounds per load. Besides this, it is a great national benefit in another point; for by this means, timber of half the number of years growth, or less, can be used for naval purposes; and thus forty or fifty years, or even less, be sufficient to produce timber fit for the navy, instead of the vast period of near a century now necessary; by which the land will not only produce a double crop in the same time, fit for this purpose, but all danger be removed of there being a stoppage of building, for want of a supply of timber, at any future period; an event extremely probable to take place, from the increasing difficulty of getting the large kind used at present in the Royal dock yards.

2. Much shorter timber may, in forming the futtocks be used, without any danger of weakening the ship, on account of the great support given to them by the fore and aft ribs, and other internal framing, before described.

The advantage of this is, that it renders the compass timber for futtocks easier to be procured, and prevents any necessity of using any timber cut across the grain.

3. The use of knees of every kind is superseded by this mode of building, as the triangular framing of the decks gives all the effect of lodging-knees, and that of the transverse frames more than supplies the support given by hanging knees.

This would occasion a considerable saving in large vessels, on account of the great price of knee-timber fit for them; which for that of 50 feet

meeting, was when the ship was building near ten pound per load, and for the smallest kind taken at the Portsmouth royal dock yard, not less than £8 15s. and is now much dearer.

4. Plank of half the usual thickness may be used for lining; the great support given by the fore and aft ribs rendering any use of inside plank, to strengthen the vessel needless, and confining its purpose merely to prevent ballast, or other matters, from getting between the timbers, so as to rest on the outside plank.

This will also cause a saving of consequence in large vessels; plank of all kinds, but particularly that of great thickness, being the next dearest article to knee timber.

5. It is probable a much less quantity of timber might be used with safety in this method, on account of the great strength produced for the timber used. 1st. By the triangular framing. 2dly. By every timber having a solid support at each extremity.— 3dly. By the increase of thickness from in to out, all along the fore and aft ribs being very great in proportion to the timber used.

6. It is probable, vessels built in this method will last many years longer before decay; because the use of small timber admits of a kind more spiny and durable than the large, which is often rotting, and never lasts so long; and also because this construction admits of a free circulation of air among the timbers, than which nothing is known to contribute so much to their preservation. It is moreover conceived, that the timbers being prevented from working, by the solid support each has at its extremities, will cause the vessel to wear less, and at the same time render it safer, by diminishing the danger of starting planks, or otherwise causing bad leaks.

7. The timber of considerable size used in this method is almost all nearly straight, or of very little curvature, on account of its running fore and aft.

This kind is much easier to procure than large compass timber.

8. Short-top timber and coarse butts can be worked up to advantage, instead of being sold for less than half

cost, or burned; as this kind will do sufficiently well for the number of short ledges in the deck frames, and to support the lining at the floor, which are wanted in this mode of building.

9. Vessels built in this manner will not be so liable as others to hog, or have their backs broken, on account of the great strength length-ways, caused by the fore and aft ribs.

10. Vessels so built will be drier, from the circulation of air before mentioned, and having the floor lining detached from the timbers; which quality renders this construction particularly valuable for the ships used in the East and West India trade.

The advantages above recited relate to vessels entirely formed in this manner. It should be known also, that part of this plan may be applied with profit. The mode of framing the decks, for instance, might be used to save lodging knees in vessels built in other respects in the usual mode. Other parts of it might be applied to the strengthening old vessels, which by this means, might be made to last many years, after they would otherwise have been unserviceable.

The principles of this method of building are capable of being extended still further than they are in the vessel here described: the triangular framing may be even adopted to the construction of fore and aft ribs, so that they may be constructed also of small timber, if required.—Thus, by this means, the former barrier to the increase of size in ships is removed, as it no longer now depends on the size of timber; and ships of any dimensions required may be formed, of any strength requisite of small timber.

The Ship Economy has been four voyages to Demerara, Surinam and the West India Islands, in which she has performed as well as could be desired, and though she has experienced much rough weather, has not sustained the least injury, or required any repair. A certificate of her excellent state, after her last voyage, by Mr. John Peake (a gentleman of the engineer department of the Navy office, whose judgement in similar

matters is held in the highest estimation) will be given in another number, together with authentic documents of her satisfactory performance in sailing and other respects, on her several voyages.

For the Belfast Monthly Magazine.

Third Report of the Committee appointed to take into consideration the Acts now in force regarding the use of Broad Wheels; and, to examine what Shape is the best calculated for ease of Draught, and the preservation of the Roads.

AMONG the various particulars, to which the attention of your Committee has been necessarily directed, that of suggesting amendments in the laws for regulating the highways and turnpike roads of the kingdom, seemed to be of peculiar importance.

The reports of former Committees have thrown much light upon this most interesting subject, and much additional information has also been transmitted to your Committee since its appointment. For the purpose of rendering the whole as succinct and intelligible as possible, your Committee submit, under distinct heads, certain resolutions which appeared to them to contain the suggestions the best entitled to the consideration of the House, as the basis of a new law, if the House shall deem it expedient to sanction such a proceeding. The subject at the same time is of such general interest, and it is so difficult to form a system of regulations, free from all objections, and applicable to every particular case, that it may be expedient, even if a bill were prepared, to circulate it during the ensuing summer recess, with a view of rendering it, by the observations of intelligent magistrates and others acquainted with the subject, as perfect as possible.

Your Committee also propose, in a separate Report, to submit to the House certain resolutions regarding Mail and Stage Coaches, and other Carriages travelling for hire; and in a third Report, such communications as they have received, regarding the formation of roads, the construction